IN THE CLAIMS:

Claims 1 - 4 (CANCELLED).

5. (CURRENTLY AMENDED) A lead according to Claim [4] 62, wherein said lead comprises two ~~said~~ pairs of electrodes, each of said pairs comprising a sensing electrode and a signal delivery electrode, wherein the sensing electrode of one of said ~~pair~~ pairs of electrodes ~~being~~ is in adjacent axial arrangement with respect to the sensing electrode of the other ~~said~~ pair of electrodes.

6. (CURRENTLY AMENDED) A lead according to claim 5, wherein each ~~said~~ sensing electrode is spaced from the nearest disposed signal delivery electrodes by a distance such as to ~~minimise~~ minimize interference between the signal provided by said sensing electrode and the field provided by said nearest signal delivery electrodes, and such that each said nearest signal delivery electrode provides an electric field that corresponds with said signal provided by the corresponding said sensing electrode.

7. (CURRENTLY AMENDED) A lead according to claim 6, wherein ~~said~~ the distance is between about ~~2mm~~ 2 mm and about ~~10mm~~ 10 mm~~, and preferably about 5 mm~~.

8. (CURRENTLY AMENDED) A lead according to claim 5, wherein each ~~said~~ sensing electrode comprises a substantially cylindrical member having an external diameter and having a lumen of a diameter slightly larger than the outer diameter of ~~said~~ the distal portion of said lead.

9. (CURRENTLY AMENDED) A lead according to claim 8, wherein ~~said~~ the cylindrical member comprises a longitudinal length less than the external diameter thereof.

10. (CURRENTLY AMENDED) A lead according to claim 9, wherein ~~said~~ the external diameter is less than ~~1.2mm~~ 1.2 mm.

11. (CURRENTLY AMENDED) A lead according to claim ~~3~~ 62, wherein each ~~said~~ sensing electrode means comprises a sensing electrode ~~is~~ adapted for sensing tissue impedance, pressure, tension or electrical signal.

12. (CURRENTLY AMENDED) A lead according to claim ~~5~~ 62, wherein each sensing electrode means comprises a sensing electrode ~~is~~ made from a material ~~chosen from: Titanium plus Iridium~~ selected from the group consisting of titanium coated with iridium oxide ~~coating~~; titanium ~~plus~~ coated with titanium nitride ~~coating~~; platinum iridium ~~plus~~ coated with iridium oxide ~~coating~~; platinum iridium ~~plus~~ coated with titanium nitride ~~coating~~; platinum iridium ~~plus~~ coated with sintered platinum ~~coating~~; titanium; platinum iridium; pyrolitic carbon; ~~or~~ and any other conductive material having suitable biostable and biocompatible characteristics.

13. (CURRENTLY AMENDED) A lead according to claim ~~5~~ 62, wherein each ~~said~~ delivery electrode means comprises a signal delivery electrode ~~comprises~~ comprised of one or more electrical conducting elements wound in parallel to a spiral coil-like form having an external diameter and having a lumen of diameter slightly larger than the outer diameter of ~~said~~ the distal portion of said lead.

14. (CURRENTLY AMENDED) A lead according to claim 13, wherein ~~said~~ the external diameter is less than ~~1.2mm~~ 1.2 mm.

15. (CURRENTLY AMENDED) A lead according to claim 13, wherein ~~said~~ the spiral coil-like form comprises a longitudinal length substantially greater than the external diameter thereof.

16. (CURRENTLY AMENDED) A lead according to claim ~~14~~ 15, wherein ~~said~~ the longitudinal length is ~~from~~ between about ~~5mm~~ 5 mm and about ~~40mm~~ 40 mm~~, and preferably about 20 mm~~.

17. (CURRENTLY AMENDED) A lead as claimed in claim 13, wherein ~~said~~ the spiral coil-like form comprises an effective external surface area of between about 30 square mm and about 250 square mm.

18. (CURRENTLY AMENDED) A lead according to claim ~~5~~ 62, wherein each ~~said~~ signal delivery electrode means comprises a signal delivery electrode ~~has an~~ having impedance in the range of between about 50 ~~Ohm~~ ohms and about 500 ~~Ohm~~ ohms.

19. (CURRENTLY AMENDED) A lead according to claim ~~5~~ 62, wherein each delivery electrode means comprises a signal delivery electrode ~~is~~ made from a material ~~chosen from: Titanium plus~~ selected from the group consisting of titanium coated with ~~Iridium~~ iridium oxide ~~coating~~; ~~(b) Titanium plus~~ titanium coated with titanium nitride ~~coating~~; ~~Platinum Iridium plus Iridium~~ platinum iridium coated with iridium oxide ~~coating~~; ~~Platinum Iridium plus~~ platinum iridium coated with titanium nitride ~~coating~~; ~~Platinum Iridium plus~~ platinum iridium coated with sintered platinum ~~coating~~; ~~Pyrolitic~~ pyrolitic carbon; ~~or~~ and any other conductive material having suitable biostable and biocompatible characteristics and having suitable capacitance.

20. (CURRENTLY AMENDED) A lead as claimed in claim 5, wherein ~~said~~ the electrodes are spaced along the lead such as to occupy a lead length of between about ~~20mm~~ 20 mm and about ~~150mm~~ 150 mm.

21. (CURRENTLY AMENDED) A lead according to claim 5, wherein ~~said~~ each electrode of ~~said~~ the two pairs of electrodes comprises at least one suitable conductor having suitable distal connector means and proximal connector means for operatively connecting each corresponding said electrode to said connection means, respectively.

22. (CURRENTLY AMENDED) A lead according to claim 21, wherein ~~said~~ the electrodes are carried on a terminal support tube comprised on ~~a~~ the distal portion of said lead, said terminal support tube comprising a substantially tubular flexible body member comprising a plurality of longitudinal channels, each said channel adapted to accommodate at least one conductor corresponding to one of said electrodes, said channels terminating at a corresponding distal terminal area adapted for accommodating a corresponding ~~said~~ distal connector means.

23. (CURRENTLY AMENDED) A lead according to claim 22, wherein ~~said~~ the distal connector means for each ~~said~~ electrode comprises a substantially flat terminal member having an exposed surface substantially larger in area than ~~a~~ the transverse cross-sectional area of ~~a~~ the corresponding ~~one said~~ at least one conductor, said distal connector means being adapted for electrically joining thereto ~~a~~ the distal end of ~~a~~ said corresponding ~~one said~~ at least one conductor, and said exposed surface adapted for electrically joining thereto a corresponding one of said electrodes.

24. (CURRENTLY AMENDED) A lead according to claim ~~22~~ 23, wherein a laser weld is used to electrically join each one of ~~said~~ the electrodes ~~is electrically joined~~ to ~~a said~~ the exposed surface of a corresponding one of ~~said~~ the distal connector means ~~by means of a laser weld~~.

25. (CURRENTLY AMENDED) A lead according to claim 22, wherein each one of ~~said~~ the distal connector means comprises a suitable well into which ~~is electrically connected to~~ the distal end of a corresponding one of ~~said~~ the at least one conductor is inserted and electrically connected by means of crimping ~~said corresponding distal connector means over a distal end of said corresponding at least one conductor inserted into a suitable well provided in said corresponding distal connector means~~.

26. (CURRENTLY AMENDED) A lead according to claim ~~22~~ 23, wherein ~~said~~ the flat terminal member is made from ~~Titanium~~ titanium.

27. (CURRENTLY AMENDED) A lead according to claim 22, wherein ~~said~~ the lead comprises a proximal portion joined to ~~said~~ the distal portion thereof, wherein said proximal portion comprises a flexible tubular member having a lumen, a proximal portion of ~~said~~ the conductors being carried in said lumen in coiled spiral configuration.

28. (CURRENTLY AMENDED) A lead according to claim ~~1~~ 62, wherein ~~said~~ the connection means comprises at least one implantable connector ~~such as IS1 connectors~~.

29. (CURRENTLY AMENDED) A lead according to claim ~~1~~ 62, further comprising an ogival intrusion head and a length of suitable tubing, said ogival intrusion head being proximally joined to ~~said~~ the distal portion of said lead via said length of suitable tubing.

30. (CURRENTLY AMENDED) A lead according to claim 29, wherein ~~said~~ the tubing comprises a bend.

31. (CURRENTLY AMENDED) A lead according to claim 30, wherein ~~said~~ the bend comprises an angle of between 30° and about 90°, ~~and preferably about 45.degree.~~ when unstressed.

32. (CURRENTLY AMENDED) A lead as claimed in claim ~~1~~ 62, further comprising means for introducing and implanting at least ~~said~~ the distal portion of said lead within ~~said~~ the at least portion of tissue.

Claim 33 (WITHDRAWN) A lead according to claim 1, comprising an external diameter such as to enable said lead to be inserted into a suitable blood vessel having a lumen of diameter less than about 1.5mm.

Claim 34 (CANCELLED).

35. (CURRENTLY AMENDED) A lead according to claim ~~34~~ 62, wherein ~~said~~ the parameters include at least one ~~of:~~ selected from the group consisting of the magnitude, shape duty cycle, phase, frequency and duration of the non-excitatory electric field.

36. (CURRENTLY AMENDED) A lead according to claim ~~34~~ 62, wherein the control means comprises means for applying to ~~said signal~~ the delivery electrodes a voltage and/or current required for performing an operation chosen from among providing non-excitatory stimuli to the heart or performing pacing or performing defibrillation.

37. (CURRENTLY AMENDED) A lead according to claim ~~34~~ 62, wherein ~~said~~ the control means comprises means for generating a non-excitatory electric field having suitable parameters such as to provide the desired change in the activity of the tissue or part thereof.

38. (CURRENTLY AMENDED) A lead as claimed in claim ~~1~~ 62, wherein ~~each said electrode is used for identifying~~ the location ~~thereof~~ of each electrode relative to the anatomical boundary between the atrium and the ventricle of the heart may be identified by using said electrode.

39. (CURRENTLY AMENDED) A lead as claimed in claim ~~1~~ 62, wherein ~~each said electrode is used for identifying~~ the location ~~thereof~~ of each electrode relative to the anatomical boundary between different heart chambers may be identified by using said electrode.

40. (CURRENTLY AMENDED)A lead as claimed in claim ~~1~~ 62, wherein ~~said~~ the control means is ~~characterised~~ characterized in being adapted for ~~(I)~~ either selectively enabling a suitable non-excitatory electric field to be generated by ~~said~~ the delivery electrode means such as to provide the desired modification in the activity of ~~said~~ the portion of tissue~~; and (II) for~~ or selectively not generating an electric field~~; according to~~ , wherein said electric field is either generated or not generated depending on at least one ~~characterising~~ characterizing feature of ~~said~~ the signal previously provided by ~~said~~ the sensing electrode means.

41. (CURRENTLY AMENDED) A lead for modifying the activity of at least a portion of a tissue, the lead comprising:[-]

at least one unitary electrode adapted for sensing activity of said at least portion of a tissue and providing a signal characteristic of said activity, said at least one unitary electrode also being adapted for selectively delivering a suitable non-excitatory electric field to said at least portion of tissue to achieve a desired change;

suitable control means; and

connection means operatively connected to said at least one unitary electrode for enabling said at least one unitary electrode to be operatively connected to ~~a~~ said suitable control means.

42. (CURRENTLY AMENDED) A lead as claimed in claim 41, wherein ~~said~~ the control means is ~~characterised~~ characterized in being adapted for ~~(I)~~ either selectively enabling a suitable non-excitatory electric field to be generated by ~~said~~ the at least one unitary electrode such as to provide the desired modification in the activity of ~~said~~ the portion of tissue~~; and (II)~~ or for selectively not generating an electric field~~; according to at least one~~ , wherein said electric field is either generated or not generated depending on at least one ~~characterising~~ characterizing feature of said signal previously provided by the same or ~~other~~ another said at least one unitary electrode.

43. (CURRENTLY AMENDED) A lead for modifying the activity of at least a portion of a tissue, ~~the~~ said lead comprising:[-]

at least one sensing electrode adapted for sensing the activity of said at least portion of a tissue and providing a signal characteristic of said activity; ~~and~~

at least one signal delivery electrode adapted for selectively delivering a suitable non-excitatory electric field to said at least portion of tissue to achieve a desired change;

suitable control means; and

connection means operatively connected to said at least one sensing electrode and to said at least one signal delivery electrode for enabling said at least one sensing electrode and ~~to~~ said at least one signal delivery electrode, respectively, to be operatively connected to ~~a~~ said suitable control means.

44. (CURRENTLY AMENDED) A lead as claimed in claim 43, wherein ~~said~~ the control means is ~~characterised~~ characterized in being adapted for ~~(I)~~ either selectively enabling a suitable non-excitatory electric field to be generated by said at least one ~~sensing~~ signal delivery electrode such as to provide the desired modification in the activity of ~~said~~ the portion of tissue~~; and (II)~~ or for selectively not generating an electric field ~~; according to at least one~~ , wherein said electric field is either generated or not generated depending on at least one ~~characterising~~ characterizing feature of ~~said~~ the signal previously provided by ~~said~~ the at least one ~~signal delivery~~ sensing electrode.

45. (CURRENTLY AMENDED) A lead according to any proceeding claim, wherein the tissue to be modified by said lead is tissue ~~is~~ of a human heart or part thereof.

46. (WITHDRAWN) A lead according to claim 45, optionally for performing pacing of said heart.

47. (WITHDRAWN) A lead according to claim 45, optionally for performing defibrillation of said heart.

48. (WITHDRAWN) A lead according to any one of claims 1 to 44 and 46 to 47, wherein said lead is implanted into a vessel or body cavity using any suitable implantation method.

49. (CURRENTLY AMENDED) A lead according to ~~any one of claims 1 to 44 and 46 to 47 claim~~ claim 62, wherein said lead is implanted onto a tissue or organ using any suitable implantation method.

50. (WITHDRAWN) A method for applying non-excitatory stimuli to the heart and optionally performing pacing and defibrillation thereof, comprising providing a lead as claimed in any one of claims 1 to 44 and 46 to 47, and positioning said distal portion of the lead within a blood vessel of said heart or portion thereof.

51. (WITHDRAWN) A method for applying non-excitatory stimuli to said tissue, comprising providing a lead as claimed in any one of claims 1 to 44 and 46 to 47, and positioning said distal portion of the lead within a blood vessel of said \ tissue or portion thereof.

52. (WITHDRAWN) A method according to claim 51, wherein said tissue is a body organ.

53. (WITHDRAWN) A method according to claim 51, wherein said tissue is a body cavity.

54. (WITHDRAWN) A method according to claim 53, wherein said body cavity is the heart.

55. (WITHDRAWN) A method according to claim 53, wherein said body cavity is a blood vessel.

56. (WITHDRAWN) A method according to claim 53, wherein said body cavity is selected from among the urinary bladder, the gastro-intestinal system, the uterus and the larynx.

57. (WITHDRAWN) A method for applying non-excitatory stimuli to the heart and optionally performing pacing and defibrillation thereof, comprising providing a lead as claimed in any one of claims 1 to 44 and 46 to 47, and positioning said distal portion of the lead on the epicardium of said heart.

58. (WITHDRAWN) A method for applying non-excitatory stimuli to said tissue, comprising providing a lead as claimed in any one of claims 1 to 44 and 46 to 47, and positioning said distal portion of the lead on the epicardium of said heart.

59. (WITHDRAWN) A method according to claim 58, wherein said tissue is the cervix.

60. (WITHDRAWN) A method according to claim 58, wherein said tissue is the uterus.

61. (WITHDRAWN) A method according to claim 58, wherein said tissue is the urinary bladder.

62. (NEW) A lead for modifying the activity of at least a portion of a tissue, said lead comprising:

a proximal portion and a distal portion;

one or more sensing electrode means adapted for sensing activity of said at least portion of a tissue and providing a signal characteristic of said activity;

one or more delivery electrode means adapted to be capable of selectively delivering a suitable non-excitatory electric field to said at least portion of tissue to achieve a desired change; wherein one or more of said delivery electrode means may comprise a unitary electrode, in which the delivery electrode means have been adapted to additionally function as one or more of said sensing electrode means;

suitable control means; and

connection means operatively connected to said electrode means for enabling said electrode means to be operatively connected to said control means;

wherein said sensing electrode means and said delivery electrode means are distributed along at least part of the length of said lead such that each of said delivery electrode means has at least one of said sensing electrode means associated with it, said associated sensing and delivery electrode means being either located in close proximity to one another or comprising a unitary electrode; and

said control means comprise means for receiving signals from each of said sensing electrode means, determining from said received signals the characteristics of the activity sensed by each of said sensing electrode means, determining on the basis of said characteristics the individual parameters and the sequencing of the non-excitatory electric field to be provided by each of said delivery electrode means associated with each of said sensing electrode means, and supplying the appropriate electric current and/or potential to each of said delivery electrode means in order to produce said non-excitatory electric field.

63. (NEW) A lead according to claim 6, wherein the distance is about 5mm.

64. (NEW) A lead according to claim 15, wherein the longitudinal length is about 20mm.

65. (NEW) A lead according to claim 28, wherein the at least one implantable connector is an IS1 connector.

66. (NEW) A lead according to claim 30, wherein the bend comprises an angle of about 45° when unstressed.

67. (NEW) A lead according to claim 62, comprising an external diameter such as to enable said lead to pass through a lumen of diameter less than about 1.5mm.